

applicants have added one claim and canceled one claim. Support for newly added claim 58 can be found in the original claim 2. Again, as previously stated in the last amendment, it is intended that the second resin not be required in claims 49, 53 and 54. Again, the applicants have rewritten the claims in order to overcome the 35 USC §112 rejections.

The applicants have amended the specification as suggested by the Examiner and have change the term “electrolytic solution” to “carrier liquid”.

Claims 37, 39, 40 and 55 were rejected under 35 USC §112 second paragraph. Claims 35-52 and 55-57 were rejected under 35 USC §112 first paragraph. Claims 49-52 were rejected under 35 USC §102(a) as being anticipated by WO 97/05529 hereinafter referred to as (“WO ‘529”). Claims 54 and 57 were rejected under 35 USC §103(a) as being obvious over WO ‘529. To the extent that these amendments do not overcome the 35 USC §112 first and second paragraph rejections, the applicants respectfully traverse these rejections.

35 U.S.C. §112 FIRST AND SECOND PARAGRAPH REJECTIONS

The applicants have amended page 13 of the specification as suggested by the Examiner and deleted the new matter.

The applicants have amended the term “electrolytic solution” to “carrier liquid”. “Carrier liquid” is a term clear to one of ordinary skill in the art. The applicants discussed support for carrier liquid in the previous amendment. At page 3 of the applicants’ specification, refers to the term “solvent” for the electrolytic solution. It is clear from the examples that the solvent is the same as the electrolyte solution which uses a hydrocarbon ISOPAR. The solvent is a carrier liquid. The term “carrier liquid” is a well recognized term of art for the liquid solvent. The term “carrier liquid” is referred to

in some of the cited patents, such as US Patent 5,843,613 at col. 7, lines 12-27 and refers to isoparaffin solvents, such as isobar; US Patent 5,019,477 at col. 4, lines 42-44, and col. 6, lines 27-49 refers to ISOPAR as the carrier liquid and US 4,659,640 refers to carrier liquids and specifically lists ISOPAR as one of the carrier liquids (see col. 2, lines 49-60).

The Examiner has questioned which methods 4 or 5 examples 20-30 were carried out. Methods 4 and 5 relate to the preparation of liquid toners. However, in method 4 only a precursor of a toner without charge control agent and carbon black is provided. This formulation is colorless and in consequence can only be used to check whether or not said formulation in general can be used for said purpose. In method 5 a real toner formulation is prepared which comprises charge control agent and carbon black as a colorant. The results of Examples 20-30 are listed in table 3 (pages 23 and 24). From the results it is evident that a toner formulation possessing a colorant has been investigated (comp. Reference to thin line resolving power, gray scale and anti-spent toner effect). Thus, it can be concluded that the formulation of method 5 was used.

The applicants respectfully disagree with the Examiner that hybrid mixtures is supported in the original application in the original claim 2. As the Examiner has correctly pointed out, there is no other disclosure in the specification for hybrid mixtures. Since the original claim 2 provides adequate support for the phrase "hybrid mixtures" the applicants believe that the claim is supported. However, in order to expedite prosecution the applicants have amended the claim. For the above reasons, these rejections should be withdrawn.

REJECTION OVER WO '529

Claims 49-52 were rejected under 35 USC §102(a) as being anticipated by WO '529. Claims 54 and 57 were rejected under 35 USC §103(a) as being obvious over WO

'529. The applicants submitted an English translation of their Japanese priority application, which the applicants believe will establish a constructive reduction to practice for amended claims of December 26, 1996 which is prior to the February 1997 publication date of WO '529. Therefore, WO '529 would not be an applicable reference. For the above reasons, the applicants respectfully request that these rejections be withdrawn.

No additional fees are due. If there are any additional fees due in connection with the filing of this response, including any fees required for an additional extension of time under 37 CFR 1.136, such an extension is requested and the Commissioner is authorized to charge or credit any overpayment to Deposit Account No. 03-2775.

For the reasons set forth above, Applicants believe that the claims are patentable over the references cited and applied by the Examiner and a prompt and favorable action is solicited. The applicants believe that these claims are in condition for allowance, however, if the Examiner disagrees, the applicants respectfully request that the Examiner telephone the undersigned at (302) 888-6270.

Respectfully submitted,

Connolly Bove Lodge & Hutz LLP

By



Ashley I. Pezzner, Reg. No. 35,646
P.O. Box 2207
Wilmington, DE 19899
(302) 888-6270

APPENDIX 1

At page 1, line 1, please amend the first two paragraphs as follows:

The toner of the present invention may be a liquid dried system containing 30% by weight to 50% by weight of a dried polymerized system containing 0.5% by weight to 5% by weight of a charge control agent, 1% by weight to 10% by weight of wax, 0.1% by weight to 2% by weight of aerosol silica, 1% by weight to 10% by weight of pigment and 85% by weight to 95% by weight of a binder resin; and 50% by weight to 70% by weight of [an electrolytic solution] a carrier liquid.

The toner of the present invention may also be a liquid toner containing 30% by weight to 50% by weight of a mixture containing 0.5% by weight to 1.5% by weight of carbon black, 0.5% by weight to 1.5% by weight of a charge control agent and 85% by weight to 95% by weight of a binder resin; and 50% by weight to 70% by weight of [an electrolytic solution] a carrier liquid.

At page 17, starting at line 18, please amend the following two paragraphs as follows:

Forty % by weight of the toner obtained with the formulation of the dry polymerized system and 60% by weight of [an electrolytic solution] a carrier liquid (Isopar H, Exxon) were mixed, and kneaded by a sand mill to prepare a toner.

<Toner preparation method 5>

Forty % by weight of a mixture consisting of 1 part by weight of carbon black (MA-7, Mitsubishi Chemical Corp.) as a colorant, 0.5 part by weight of a charge control agent (Reflex Blue R51, Hoechst AG), and 98.5 parts by weight of a binder resin was

mixed with 60% by weight of [an electrolytic solution] a carrier liquid (Isopar H, Exxon).

The mixture was kneaded with a sand mill to prepare a toner.

APPENDIX 2

35. A toner for developing an electrostatically charged image, the toner comprising

- (a) a binder resin comprised of at least one polyolefin resin having a cyclic structure, wherein the polyolefin resin having a cyclic structure comprises:
 - (i) a first resin or a first resin fraction with a number average molecular weight (Mn), as measured by GPC, of less than 7,500, [and a glass transition temperature Tg of lower than 70°C] and
 - (ii) a second resin or a second resin fraction with a number average molecular weight (Mn) of 7,500 or more, Mw of 15,000 or more, and an intrinsic viscosity of 0.25dl/g or more [and a glass transition temperature Tg of lower than 70°C];
- (e) a colorant;
- (f) a function imparting agent; and
- (g) a charge control agent and

wherein said first resin or said first resin fraction and said second resin or said second resin fraction must be present and said second resin or second resin fraction is contained in a proportion of less than 50% by weight based on the entire binder resin.

38. The toner for developing an electrostatically charged image as claimed in claim [37] 35, wherein the polyolefin resin having a cyclic structure has at least

one polar functional group selected from the group consisting of a carboxyl group, a hydroxyl group and an amino group.

39. The toner for developing an electrostatically charged image as claimed in claim 35, wherein the polyolefin resin having a cyclic structure comprising a carboxyl groups introduced therein having uniformly dispersed therein fine particles of a metal thereby forming [is] an ionomer having crosslinked structure.

40. The toner for developing an electrostatically charged image as claimed in claim 38, wherein the polyolefin resin having a cyclic structure comprising a carboxyl groups introduced therein having uniformly dispersed therein fine particles of a metal thereby forming [is] an ionomer having crosslinked structure.

43. The toner for developing an electrostatically charged image as claimed in claim 41, wherein the polyolefin resin having a cyclic structure has a structure crosslinked by a diene, ester, amide, sulfide or ether wherein the crosslinked structure is obtained by the reaction of

(a) a diene monomer [together with ester, amide, sulfide or ether,] [is reacted] with (b) an acyclic olefin and (c) a cycloolefin [to obtain a terpolymeric polyolefin having a cyclic structure].

48. A toner for developing an electrostatically charged image, the toner comprising

(a) a binder resin comprised of at least one polyolefin resin having a cyclic structure comprising at least three different resins or resin fractions having molecular weight ranges expressed by number average molecular weight (Mn), as measured by GPC,

- (i) of less than 7500 which is a first resin or first resin fraction,
- (ii) 7500 or more but less than 25,000, Mw of 15,000 or more, and an intrinsic viscosity of 0.25dl/g or more which is a second resin or second resin fraction, and
- (iv) 25,000 or more, Mw of 15,000 or more, and an intrinsic viscosity of 0.25dl/g or more which is also part of the second resin or the second resin fraction,
and wherein said first resin or said first resin fraction and said second resin or said second resin fraction must be present and said second resin or second resin fraction is contained in a proportion of less than 50% by weight based on the entire binder resin,
 - (e) a colorant;
 - (f) a function imparting agent; and
 - (g) a charge control agent.

49. A toner for developing an electrostatically charged image, the toner comprising:

- (a) a binder resin comprised of at least one polyolefin resin having a cyclic structure, wherein the polyolefin resin having a cyclic structure comprises:
 - (i) a first resin or a first resin fraction with a number average molecular weight (Mn), as measured by GPC, of less than 7,500, [and a glass transition temperature Tg of lower than 70°C;] and

optionally (ii) a second resin or a second resin fraction with a number average molecular weight (Mn) of 7,500 or more, Mw of 15,000 or more, and an intrinsic viscosity of 0.25dl/g or more;

- (b) a colorant;
- (c) a function imparting agent; and
- (d) a charge control agent,

wherein said second resin or said second resin fraction is contained in a proportion of less than 50% by weight based on the entire binder resin.

51. The toner for developing an electrostatically charged image as claimed in claim 50, wherein the [acylic] acyclic olefin is present and is an alpha-olefin selected from the group consisting of ethylene, propylene and butylene.
55. The [liquid] toner as claimed in claim 35, wherein said second resin or said second resin fraction is present in amount from [7%] 7.4% to less than 50% by weight based on the entire binder resin.